

HE glittering orb of light which for months has been resplendent with beauty in the western sky is early in August at her maximum brilearly in August at her maximum bril-liancy. Rapidly it dwindles in beauty, quickly draws in towards the sun and disappears from the evening sky till next year. Venus is at her greatest brilliancy on August 9. On September 14, it passes the sun and becomes a morning star. Just now it is a beauti-ful object in a small telescope, showing like a crescent moon half way to the like a crescent moon half way to the first quarter.

and general characteristics that she has been called the "Earth's twin sister." The earth is 7920 miles in diameter, Venus is 7700. Are there other points of resemblance beyond mere size; and most interesting question of all, is Ve-nus inhabited like the earth?

ets, and as telescopes become of greater size so that the planetary detail could tacked again and again.

Study of Venus.

What to powerful telescopes teach about Venus? The greatest of all vis-bal observers, Prof. Barnard, has ex-amined venus for 30 years with tele-scopes great and small, including the great 36 and 40 inch glasses of the Lick and Yerkes observatories, and under all varieties of conditions, morning, neon and night. He has seen markings on Venus, but of a very evanescent kind, which change rapidly from hour to hour, and which are explained by him as some kind of cloud phenomena.

No permanent markings of any kind or description have ever been soen by him, an idea which is in keeping with that of most conservative astronomers. The general idea is that Venus is cov-ered over densely with clouds, that at best we can obtain but fleeting glances through this permanent atmosphere of clouds, and that consequently we can know nothing at all of the actual land or water surface of the planet. It is this sea of clouds which reflects so much sunlight and makes Venus shine with her matchless brilliancy.

In opposition to the average astrono mer, stand the observers at the observatory at Flagstaff. Professor Percival Lowell and his assistants have re-peatedly seen markings on Venus showresemblances to the spokes a wheel, markings which run straight lines to a central dark ares. These markings, which appear to Lowell almost as hard and sharp as his observed canals on Mars—though not being used by Lowell to prove that Venus is inhabited

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of deficient manbood and vigor failure ever put together.

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The right assertables on the same and following mornings by Prof. Barnard showed that the Keiss comet had a tall a degree and a half in length, and it was visually between the sixth and seventh magnitude. Spectra taken by Mr. Parkhurst show the typical cylonogen band at 3883, and the carbon band at wavelength 4710. The comet was moving southwest when discovered.

On the morning of July 12, 1911, Director Frank Schlesinger, of the Allegheny observatory, reported that a fairly bright comet was seen just before dawn in the eastern sky. writing out a prescription like this—
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Inirly bright comer was seen fore dawn in the eastern sky.

The right ascender

-go to prove for him that Venus shows permanent features not hidden by clouds as others think. Moreover, the permanence of these markings shows that Venus rotates on her axis once in 225 days, and not once in 24 hours, as earlier astronomers had thought These observations of the Lowell observatory are exceedingly interesting and are well worth the careful study

Question of Rotation.

The question of the rotation period of the planet is the most vital one in the whole problem. If Venus rotates once in 225 days, it keeps always the same face towards the sun, for it takes 225 days to make a revolutionn about the sun. In this respect the motion resembles that of the moon which always turns the same face towards the earth. How is the rotation time of a The celebrated astronomers of past times have been greatly concerned in the possible habitation of other plan- markings, it is very easy, by noting when the markings return to their for-mer positions. The features of Venus so transitory that this method only one other means possible and that is by use of the spectroscope. This remarkable instrument can measure the motion of a heavenly body in the line of sight determining the motion accurately in tailes per second

Without going into the detail of how these observations are made, suffice to say that with Venus they are of the utmost degree of difficulty, and tax to the utmost the great refinements of medernn astronomy. This has been tried at many observatories where powerful spectroscopes are attached to the telescopes, but practically at one observatory only are results stated with confidence, and that at the Flagstaff observatory; and there the spec-troscope confirms the visual observations that Venus rotates on her axis once in 225 days.

If this be true, one side of the planet is always turned towards the sun, and here the sun would beat down continuously with a torrid fury which would make all life such as we know on this earth of ours utterly impossible. The other side of Venus permanently turned from the sun would have perpetual night with frigid temperatures hundreds of degrees lower than any known in our coldest Arctic night.

According to Lowell, there would be a circulation of atmosphere from the as Prof. Pickering, Harvard, and Prof. tropic zones to the frigid ones. The Very, of Paris, go so far as to say that intense coid of the latter would freeze there may be people on the moon, for the contract of the con all the moisture out of the air which would thus be deposited as snow and to the contrary. Ice on the side of Venus turned away from the sun. This process has been Prof. Pickering going on for ages, and Lowell's view floating in the lunar sky, and he has is, therefore, that all the water on Venus is collected in the form of ice and and ice on the surface of the moon, and snow on one side of the planet. The he points them out so that anybody side of Venus turned toward the sun side of Venus turned toward the sun may observe them at leisure. Where is devoid of all moisture. From this there are clouds and snow there must des, Venus cannot have any clouds be an atmosphere and moisture. With in our meaning of the word. quently, according to Lowell, Venus is animal life, entirely unfit for habitation.

Another suthority, Prof. T. J. J. See, convinced the

of Mare Island, California, agrees in the main with Prof. Lowell, but differs

Conservative astronomers of wide experience believe that we never have seen anything of the real surface of Venus, and that we know nothing at all of the habitability of Venus,

Comets. There are 10 comets visible. Wolf's periodic comet has returned, but it can be seen only in the very largest telescopes. On the morning of July 7, at the Lick observatory, Kiess picked up a new comet in the constellation of Taurus, at right ascension 4 hours, 51 minutes, 52 seconds, and declination 35 degrees, 15 minutes north. The following morning the writer observed this new visitor in the 12 inch telescope of the Yerkes observatory, and also in the three inch finder. It showed as a feggy star. Photographs on the same and following mornings by Prof. Barmard showed that the Kelss comet had a tail a degree and a half in length, and it was visually between the sixth and seventh magnitude. Spectra taken feggy star. Photographs on the same

bright star Capella. The Pianets,

Mercury is at greatest elongation should be visible shortly after sunset, few days before and after this date as an evening star in the west. Watch how quickly Venus dwindles

of the sun and rises at midnight. During August it increases much in bril-

liancy, rising earlier each night.

Jupiter is in conjunction with the moon on the second of the month, the moon passing to the south of the plan-et. The same happens again on the 28th. This giant planet is most inter-esting to possessors of small telescopes. In the 40 inch telescope of the Yerkes observatory the other night the writer saw the giant planet in matchless

and 45 minutes and its declination 34 gether with the ever changing satel-degrees 30 minutes. It is in the con-stellation of Auriga, not far from the for the amateur.

Mars and Saturn are very close to each other in the sky. On the 16th when the planets rise both may be seen in the field of view of a small telescope, for Mars will be only 21 minutes of arc (two-thirds the diam-eter of the moon) north of Saturn, A will be in the same quarter of the sky, being about four degrees north of the two planets. Saturn is 90 degrees west of the sun on the 13th or the month, The year 1911 is a wonderfully interesting year for planets.

August Metcors. One of our most important "show-ers" of meteors, or shooting stars, occurs on the 10th and 11th of August. Its center of radiation is from the con-stellation Perseus, which rises in the northwest about 10 p. m. One should watch until midnight for these meteors, beauty. The belts are most interesting, four narrow ones being seen in exquisite detail. These markings, to-

RENE BACHE'S BUDGET.

## MYSTERY OF THE MUU

SCIENCE TURNING TO THE BELIEF THAT THE MOON IS NOT DEAD.

Recent Discoveries Point to the Conclusion That There Is Life of Some Kind on the Luna Orb-Plant Life Certainly, and If So, Why Not Animal Life? A Fascinating Theory.

often and so emphatically in the negative that it is surprising to find scieven declaring that there is some sort of life on the lunar satellite. Such men any satisfactory evidence that we have

Clouds in Lunar Sky.
Prof. Pickering has found clouds fleating in the lunar sky, and he has air and moisture, there ought to be

As for plant life, Prof. Pickering is convinced that the great telescope at Cambridge has disclosed to his eye a fluorishing vegetation on the moon. iand on Venus between permanent day and perpetual night is habitable and is inhabited.

It occurs only in some places but it is sunlight.

It occurs only in some places but it is sunlight. ening of spots and lines, mostly in the lowest parts of the socialed "craters," and in deep, canyon-fike clefts. In the crater of Eratosthenes such patches are shown so clearly and on so large a scale that they have been repeatedly photographed. It is supposed that enough water vapor escapes from the craters and flows down their sides to develop vegetation along their slopes. Probably water itself issues from the Plant growth on the moon may be imagined, perhaps, to be re-stricted to certain limited areas and to strips along sunken water courses, as in our own deserts in Africa, southern

> Brilliant Crater Lining. One of the greatest mysteries about lining of some of the larger craters, the "streaks" being great clefts filled with snow, which, when the sun is high in the lunar heavens, gleams

ing the moon to be devoid of animal life, next to the alleged lack of air to breathe, has been one of tempera-ture. Even admitting that there is an

Are there any men in the moon?

The question has been answered so during the night against the cold of outer space. It is only the blanket of course, that How could human beings or other an-

the mountains, in caverns, formed by huge bubbles of volcanic gases like the strange inhabitants of the fabled Caves of Kor. Whole cities may be built, indeed, in the hollow of the lunar tion of temperature from night to day.
In Bulwer Lytton's famous book, "The
Coming Race," a large population is
described as occupying the earth's interior under rather similar circumstances, artificial means of illumina-tion being employed as a substitute for

Seas Have Sunk.

The seas which anciently occupied ortions of the moon's surface have doubtless sunk into its interior, and there may be considerable bodies of water in the depths of the lunar mountains, so that there would be no lack of drink. There may even be considerable volcanic heat within the moun-tains (says Pickering), affording temperature high enough to sustain life.
All of this, of course, is pure surmise, but at least it may be said that there is good reason to believe that the moon is by no means so dead as has been heretofore supposed. We have no reason whatever (summing up the evidence) for assuming that there are no people in the moon. As for air to breathe, they may be so modified as to be able to get along with compara-tively little of it. Inasmuch as the lu-nar day is two weeks long, and night inhabitants of our satellite venture forth from their subterranean homes during early morning and late evening while the temperature is moderate, and

find occupation above ground.

The face of the moon that is turned toward us is about the size of North America, but is much more accurately and thoroughly mapped. All over it are scattered the curious, ring-shaped craters, so called, which are the characteristic feature of the lunar surface About 25,000 of these are visible to the

keeps us all from being frozen stiff and dead inside of the next few seconds. On the other hand, owing to the same cause, the temperature on the lunar surface must in the daytime rise to something like 250 degrees Fahrenheit. imals survive under such conditions? Prof. Very suggests that people might perhaps dwell in the depths of

giveness on repentance? (17.) It is possible for a good man

to die, or be put to death, before his work is done? Why?

less there are immense numbers of

smaller ones which are not big enough to be seen. A typical formation of this kind is Aristillus—a circular plain 34 miles in diameter, surrounded by a ring of mountains over two miles high, and with a single lofty peak ascending precipitously from its center.

Plate of the Moon.

In the northern hemisphere of the moon is Plate—a smooth plain, oval in outline, 60 miles in greatest diameter, and surrounded by a lofty mounta! Over its surface are scattered many minute craterlets, often obscured by white patches, which wax and want as the sun rises or sets. This is supposed to be due to the emission of volcanic steam, and the formation snow by the condensation of the steam. Prof. Pickering says: "It is a volcanic area more active than any of similar size on the earth."

The mountain rings, mostly of a roughly circular figure, form great saucer-shaped amphitheaters, in the enter of which as a rule one or more jagged peaks rise to a great height above the level floor. On the floor of Plate are many such peaks, but strange to say their number seems to be constantly varying. Sometimes there are The right ascension is four hours atmosphere, it must be so extremely less than one mile to 800 miles. Doubtimpact of moonlets striking the face of the lunar orb. The idea is, in a

does this happen? Nobody can say, unstill going on.

In parts of the moon there are much more extensive "walled plains," with-out central peaks, and with walls risfour miles. It is an easy matter to measure the heights of there mountains by the shadows they cast at the lunar sunrise. But what strikes one as most remarkable is that the lunar topography is altogether different the physical geography of the earth. We have nothing like the craters and walled plains of the moon. In one place, by the way, can be seen a precwhich are the openings of thousands of caves, which extend inward, it may be, for miles. With such a picture presented to the view of the telescope the theory of a population living in the depths of the mountains does not seem so unreasonable.

Craters Are Sears. Among scientists, one of the most profound students of the moon is Prof Grove K. Gilbert, who originated the theory, now quite generally accepted, that the socalled craters are not really such at all, but scars made by the SATISFYING



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cidents mentioned as precedents, for the acquittal of Jeremiah?

past of true and courageous prophets.

(22.) Which is better, to faithfully do the will of God at the expense of

Jeholakim Burns the Prophet's Book.

SCRIPTURE.

I will say of the Lord, He is my

He shall cover thee with his feathers, and under his wings shalt thou trust;

Thou shalt not be afraid for the

darkness; nor for the destruction

terror by night, nor, for the arrow

that flieth by day.

Nor for the pestilence that walketh

that wasteth at noonday.

A thousand shall fall at thy side,

and ten thousand at thy right hand; but it shall not come night thes.

Only with thine eyes shalt thou be

hold and see the reward of the wicked.

High, thy habitation; There shall no evil befall thee,

For he shall give his engels charge

INTERNATIONAL PRESS BI-

BLE QUESTION CLUB.

I have read the Suggestive Questions on the Sunday School Lesson published in The El Paso Herald; also the Lesson itself for Sunday, Aug. 6, 1911, and intend to read the acres of 52.

over thee, to keep thee in all

shadow of the Almighty.

him will I trust,

thy dwelling

(21.) What has been the rate in the

Suggestive Questions On Sunday School Lesson By Rev. Dr. Linscott For the International Newspaper Bible Study Club

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THIRST-QUENCHING

and my salvation; whom shall I fear? Ps. xxvii:1.

(1,) Verses 1-6-What was the character of Jehoiakim, also of Josiah, his

(2.) To whom did the word of the (3.) How did God probably speak to

(4) May all persons today, with the our lives, or to dodge His will and coodness and ability of Jeremiah, hear the voice of the Lord as distinctly as (5.) What was the message which the Lord gave Jeremiah to deliver?

(6.) If the people had repented at the command of the Lord, would the kingdom of Juddah have been pre-

(7,) Why can there be no escape for sinners, from the just punishment of their sins unless they repent?
(8.) Verses 7-10—How do you count for it that the priests and the prophets wanted to kill Jeremiah, for delivering the message that God had

given him?
(9.) If a professional priest, or preacher, is backsliding and living in why is he apt to be more cruel to a faithful preacher of righteousness

than an ordinary sinner? (10.) From the days of Jesus until now, by whom have the martyrs been put to death, or, admittedly men of God, expelled from the churches?
(11,) Which are the more cruel to

those who rebuke them, men who under cover of religion are doing wrong, or outstanding sinners such, for example,

as gamblers? (12) Verses 11-12—Did these priests and prophets, who wanted to put Jere-miah to death for preaching the truth, believe that he was wrong and they right; or knowing he was right, want to get rid of him for exposing their sins?

(13.) What qualities did Jeremiah possess which are essential to all who obey God in rebuking sin? (14.) Must a good man always re-

buke what he knows to be wrong, no matter how much danger it may involve to himself? Give your reasons. (15.) Is it the lack of knowledge that they are wrong, or something else, (16.) Verses 13-15-Do you know of any Bible threat against sinners, that is not associated with a promise of for-

(18.) Verses 16.26-The priests and

the prophets are the accusers of Jeremiah and want to put him to death, and the princes and people appear to

word, that once upon a time the earth on which we live was surrounded by a great ring of meteoric matter, as the planet Saturn is today. But eventually the meteors fell together, forming thousands of moons of various sizes, and these in turn were at length concentrated into a single satellite.

Prof. Gilbert says that the lunar craters do not resemble voicances at all Small ones often occur in parts of the larger ones; frequently they overlap.

larger ones: frequently they overlap, the newer partly effacing the older, and they are wonderfully much alike. The professor found that clay balls thrown be the judge and jury; what was their verdict and upon what was it based? (19.) Is it safe in these days to trust at a target of moist clay made impres-sions exactly similar. the people to decide moral issues? (This is one of the questions which may be answered in writing by members of the club).

(20.) What were the two historic in-

On one occasion (says Prof. Gilbert) the plain called Mare Imbrium was struck by a moonlet which must have been at least 80 miles in diameter. The mooniet was partly melted by the shock (the energy of its impact being converted into heat), and poured a vertable deluge of material, solid, pasty and liquid, in all directions, flooding and partly submerging a fourth part of the southwest the molten deluge reached nearly 1000 miles. It was a tremendous catastrophe. Many of the old "craters" were obliterated. Fragments of the mighty projectiles, af-ter flying more than 1,000 miles, scored in the moon's surface valleys comparable in magnitude to the Grand Canyon of Colorado. One of these furrows is 187 miles long, 10 to 25 miles broad, and 1,000 feet in maximum depth.

Pasims 91:1-11. He that dwelleth in the secret place of the most High shall abids under In a geological sense, this was a occurrence. Very likely the moonlet in question was the largest survivor of the original flock of moons at the refuge and my fortress; my God; in time of the collision. Some smaller ones fell afterwards, however, and Surely he shall deliver thee from the their fresher scars (or craters) are plainly to be seen. Indeed, the whole history of the cataclysm above described may easily be read with the aid of a telescope. truth shall be thy shield and

If we were on the side of the m that is turned toward our own planet, we would see the earth as a gigantic moon. It would go through all the phases we see in the moon, and in re-volving would present a most interestoceans passing in review like a panora-ma-a picture in brilliant colors, too, with bright green continents spotted here and there with yellow deserts; seas of deep blue at the equator, shad-Because thou hast made the Lord, ing to green toward the poles, and which is my refuge, even the most white polar caps. All of this more or High, thy habitation:

There shall no evil befall thee, Prof Pickering asserts that our moon neither shall any plague come night has a little moon of its own-a tlay ndary satellite only a few hundred yards in diameter. It is observable only when the earth passes between latter into its huge shadow.

Young Mothers

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